REMARKS

The foregoing amendments and these remarks are in response to the Office Action dated January 4, 2005. This amendment is timely filed.

At the time of the Office Action, claims 1-10 were pending. In the Office Action, objections were raised to the abstract and claims 3-5. Claims 1, 3, 5-7 and 10 were rejected under 35 U.S.C. §103(a). Claims 4, 8 and 9 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The objections and rejections are discussed in more detail below.

I. Abstract Objections

The abstract was objected to for informalities. The abstract is duly amended herein to correct these informalities, and withdrawal of the objection is thus respectfully requested.

II. Claim Objections

Claim 3 was objected to because the word "viz" is not clear. Claim 3 has been amended to remove the word "viz" and the subsequent features, which have been placed in new claim 11. Claims 4 and 5 were objected to because the phrases "the respective sockets" in claim 4 and "the latter" in claim 5 were asserted to lack antecedent basis. Claims 4 and 5 are amended herein, and withdrawal of the objections are thus respectfully requested.

III. Rejections to the claims based upon Art

Claims 1, 3, 5-7 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,858,471 to Wareham ("Wareham") in view of U.S. Patent No. 4,625,559 to Carter et al. ("Carter"). Applicant respectfully submits claim 1 is patentable over these references.

In the pressure transducer of Wareham, one or more capillary tubes 14 are arranged inside filler tube 15 internal and concentric to the annular chamber 28, which extends along the whole length of the sensing member 12 of the transducer (see column 3, lines 17-21, column 5, lines

29-37, and Figs. 1 and 2). None of the alternative embodiments contemplated in the document by Wareham disclose an arrangement which is equivalent to that defined in the claims of the present application.

Moreover, in stark contrast to the pending claims, in Wareham, the capillary tubes are fixed onto the sensitive element by welding at either end. The welding requires crucial processing to prepare the end portion of the sensitive element for receiving the capillary tube. Moreover, the weldings are susceptible to irreversible failure under high pressure working conditions, which failure leads to high replacement costs.

Turning now to Carter, the pressure transducer disclosed comprises an externally threaded end portion 31 positioned on a housing 2, serving the purpose of screwing the transducer to a pressure sensing port apparatus, i.e. to the source of pressure to be measured. Due to the threading, the pressure measurement becomes more accurate and independent of variations in temperature. To the contrary, in the pending claims, it is the two capillary tubes that are screwed onto their threaded sockets 12 and 13 inside the sensitive element 2 by means of outside threads 17 and 18 of each end 15 and 16. This arrangement enables the transducer to withstand higher pressures than its conventional counterparts.

It is clear from the above that the threading in the transducer by Carter does not solve the same technical problem as the one solved by the present invention. It would therefore not have been obvious for a person having ordinary skill in the art, aiming to design a pressure transducer capable of withstanding higher pressures, to look into the patent by Carter, which discloses a pressure transducer capable of accurately monitoring pressures without significant temperature dependence, and which has an overall design substantially different to that of the present application. Furthermore, even if the skilled person were to combine the teachings of the two documents, he would not arrive at that which is recited by claim 1 is because neither document either discloses or suggests a pressure transducer in which the capillary tubes are provided with externally threaded ends for fixing onto the sensitive element.

Finally, the transducer of the present application enjoys advantages over the prior art in that it is able to withstand high operation pressures owing to the capillary tubes being secured onto the sensitive element by the threading. Neither of the transducers of the prior art can claim the same.

Thus, claim 1 is believed patentable over the cited prior art. The dependent claims are also believed to be patentable because of their dependence upon an allowable base claim, and because of the further features recited. Applicant has the following additional comments regarding several of the dependent claims:

With regard to claim 3, there are two flat surfaces, one of which is sensitive to pressure (5) and one that is not (25), both having a role in the operation of the transducer and allowing the adoption of conventional strain gauges, rather than less common ones, as is the case of the transducer by Wareham.

With regard to claim 6, there are two deformation sensors (14 and 26), rather than one only. This allows for thermal balancing of the whole device.

With regard to claim 7, there are substantial differences between the recess in the middle of the sensitive element and the one disclosed by Carter. Carter, in fact, refers to a diaphragm pressure sensor, whereas the transducer of the present invention exploits the expansion of a cylinder under internal pressure.

IV. Conclusion

Applicants have made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicants respectfully request reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

Date: 4-4-05

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